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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,298	10/25/2003	Donald G. Chamberlain	Geo-X 009.01	1480
37471	7590	03/16/2005	EXAMINER	
W. ALLEN MARCONTELL P.O. BOX 800149 HOUSTON, TX 77280-0149			HUGHES, SCOTT A	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/693,298

Applicant(s)

CHAMBERLAIN ET AL.

Examiner

Scott A Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/25/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7 and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Wood.

With regard to claim 1, Wood discloses a method of acquiring a seismic survey in which a network of seismic acquisition and communication modules includes at least one high precision clock ADAM and at least one clock of less precision (other ADAMS and GDM) wherein the clock of less precision is synchronized to the high precision clock by transmission of one or more synchronization signals and one or more of the seismic acquisition and communication modules contains a global positioning system receiver capable of computing its position and its time from a received global positioning system signal (Fig. 2) (Column 6, Lines 24-59; Column 6, Lines 24-49).

With regard to claim 2, Wood discloses that at least one of the global positioning system receivers receives assistance in computing its position and time from a master global positioning system receiver GDM within the network (Column 7, Line 61 to Column 8, Line 8).

With regard to claim 3, Wood discloses that the master global positioning system receiver communicates information to other global positioning system receivers (System

Management Station receiver, 40 in Fig. 4; Column 9, Lines 20-30) within the network to aid them in their reception of satellite signals and in their computation of time based on the satellite signals (Column 6, Lines 43-49; Column 7, Lines 24-33; Column 7, Line 61 to Column 8, Line 8).

With regard to claim 4, Wood discloses that the master global positioning system receiver receives satellite-tracking information from at least one of the global positioning system receivers (Column 7, Lines 24-33).

With regard to claims 5 and 6, Wood discloses that the master global positioning system receiver computes position coordinates of at least one of the global positioning system receivers utilizing tracking information gathered by the receiver and communicated to it via an intervening network (Column 6, Lines 43-49; Column 7, Line 61 to Column 8, Line 8).

With regard to claim 7, Wood discloses that the information includes the current and future locations and identifications of available satellites (Column 7, Lines 24-33 and 60-67). Wood discloses a satellite constellation for use in the position and timing information for the entire seismic network. It is known that a satellite constellation has information about its current and future positions.

With regard to claim 10, Wood discloses a seismic signal acquisition and processing assembly. Wood discloses a central control module having a master clock (40, Fig. 4). Wood discloses a plurality of data acquisition and communication modules having at least one high precision clock and one or more clocks of less precision ADAMS and GDM (Column 6, Lines 26-49). Wood discloses that the control module

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and the data acquisition and communication modules are connected in a cooperative network assembly (Column 5, Line 50 to Column 6, Line 16; Column 9, Lines 20-30).

Wood discloses a master global positioning system receiver assembly (40, Fig. 4) (Column 7; Column 9, Lines 20-25) located within the network assembly. The master global positioning system receiver assembly can also be read as the GDMs which help compute positions of the ADAM and sensor units (Column 6-Column 7)

With regard to claim 11, Wood discloses that one or more of the global positioning system receivers are capable of receiving and utilizing assistance in satellite tracking or in computation of position coordinates from the master global positioning system receiver assembly (Column 9, Lines 20-30) (Column 6, Lines 43-49; Column 7, Lines 24-33; Column 7, Line 61 to Column 8, Line 8 for the GDM).

With regard to claim 12, Wood discloses that the master global positioning system receiver assembly is capable of providing to one or more of the global positioning system receivers assistance in satellite tracking or in computation of the position coordinates of the receivers (Column 9, Lines 20-30; (Column 6, Lines 43-49; Column 7, Lines 24-33; Column 7, Line 61 to Column 8, Line 8).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood.

With regard to claim 8, Wood discloses that the global positioning system receivers transmit accumulated received GPS signals and received information to the master global positioning system receiver and in which the master global positioning system receiver processes the signals and information to determine best estimates of positions and communicates these back to the receivers (Column 9, Lines 20-30). It is known that GPS systems work by accumulating GPS signals and using these signals to create best estimates of the positions of the receivers through triangulation.

With regard to claim 9, Wood discloses that the global positioning system receivers utilize the received best estimates of positions to compute best estimates of global positioning system time utilizing signals received from one or more satellites (Column 9, Lines 20-30). It is known that GPS systems work by utilizing signals from GPS receivers to determine best estimates of position and of system time through the transmission of the satellite signals.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Norris, who discloses a seismic synchronization system.

Harmon, who discloses GPS synchronization in a seismic system.

Morgan, who discloses GPS synchronization in a seismic system.

Page, who discloses a method of network synchronization involving master and slave clocks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A Hughes whose telephone number is 703-305-0430. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 703-306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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